

CLAIMS

What is claimed is:

1. A method for directly identifying a candidate compound as a compound selected from the group consisting of an inverse agonist, a partial agonist and an agonist, to an endogenous, constitutively active G protein coupled orphan receptor, comprising the steps of:
 - (a) contacting a candidate compound with GPCR Fusion Protein, said GPCR Fusion Protein comprising an endogenous, constitutively active G protein coupled orphan receptor and a G protein; and
 - (b) determining, by measurement of the compound efficacy at said contacted receptor, whether said compound is an inverse agonist, a partial agonist or an agonist of said receptor.
2. The method of claim 1 wherein the compound is directly identified as an inverse agonist to said orphan receptor.
3. The method of claim 1 wherein the compound is directly identified as an agonist to said orphan receptor.
4. The method of claim 1 wherein the compound is directly identified as partial agonist to said orphan receptor.
5. A composition comprising a compound identified by the method of claim 2.
6. A composition comprising a compound identified by the method of claim 3.
7. A composition comprising a compound identified by the method of claim 4.
8. The method of claim 1 wherein said orphan receptor is selected from the group consisting of: GPR3, GPR4, GPR6, GPR12, GPR21, OGR1, GHSR, RE2 and ALO22171.

9. The method of claim 1 wherein said orphan receptor is GPR6.
10. The method of claim 1 wherein said G protein is selected from the group consisting of: Gs, Gi, Gq and Go.
11. The method of claim 1 wherein said G protein is Gs α .
12. A method for directly identifying a candidate compound as a compound selected from the group consisting of an inverse agonist, a partial agonist and an agonist, to an endogenous, constitutively active G protein coupled orphan receptor, comprising the steps of:
 - (a) contacting a candidate compound with GPCR Fusion Protein, said GPCR Fusion Protein comprising an endogenous, constitutively active G protein coupled orphan receptor and a Gs α protein; and
 - (b) determining, by measurement of the compound efficacy at said contacted receptor, whether said compound is an inverse agonist, a partial agonist or an agonist of said receptor.
13. The method of claim 12 wherein said orphan receptor is selected from the group consisting of: GPR3, GPR4, GPR6, GPR12, GPR21, OGR1, GHSR, RE2 and ALO22171.
14. The method of claim 12 wherein said orphan receptor is GPR6.
15. The method of claim 14 wherein said compound is directly identified as a compound selected from the group consisting of an inverse agonist and an agonist.
16. The method of claim 15 wherein said compound is an inverse agonist.
17. A composition comprising the compound of claim 16.
18. A method for modulating a G protein coupled orphan receptor comprising the step of contacting said receptor with a compound identified by the method of claim 1.

19. A method for modulating a G protein coupled oprhan receptor comprising contacting said receptor with a compound identified by the method of claim 12.